

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 2003UR016	FOR FURTHER ACTION <small>see Form PCT/ISA/220 as well as, where applicable, item 5 below.</small>	
International application No. PCT/US04/04334	International filing date (<i>day/month/year</i>) 13 February 2004 (13.02.2004)	(Earliest) Priority Date (<i>day/month/year</i>) 01 April 2003 (01.04.2003)
Applicant EXXONMOBIL UPSTREAM RESEARCH COMAPNY		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the Report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box No. II)

3. ☐ Unity of invention is lacking (See Box No. III)

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

a. the figure of the drawings to be published with the abstract is Figure No. 2

☐ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☒ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

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Box IV TEXT OF THE ABSTRACT (Continuation of Item 5 of the first sheet)

NEW ABSTRACT

The present invention is a method of processing seismic data in which one or more seismic vibrators are activated with one or more pilot signals and vibrator motions are recorded along with seismic data. Vibrator signatures (4) are computed from measured vibrator motions (2), such as the ground force signal. A desired impulse response (5) is specified from either a measured vibrator motion (2) or from test data or field data from a location near the location from which the seismic data was acquired. A deconvolution filter (8) is computed from the impulse response (5) and from the vibrator signatures (4) from multiple vibrators and sweeps (1). The deconvolution or deconvolution and separation filter (8) is used to process the seismic data. The vibrators are then moved to a new location, and the activation is repeated.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G01V 1/00

US CL : 367/43,46,47,48; 702/14,17

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 181/111

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6,418,079 B1 (Fleure) 9 June 2002 (09.06.2002) column 6, lines 15-36; column 7, lines 1-14	1-2, 12, 26-27, 33
A	US 6,687,619 B2 (Moerig, et al) 3. Feb. 2004 (03.02.2004) column 8, lines 13-35	1, 26
A	US 6,766,256 B2 (Jeffryes) 20 Jul. 2004 (20.07.2004) columns 5-10, Figs. 9-10	1-46
A	US 5,410,517 A (Anderson) 25 April 1995 (25.04.1995) column 4, lines 39-44	17-19, 39-41
A	US 5,550,786 A (Allen) 27 Aug. 1996 (27.08.1996) column 2, lines 23-47; column 5, lines 1-65	1-3,6-7, 10, 26-28
A	US 5,719,821 A (Sallas, et al) 17 Feb. 1998 (17.02.1998), column 4, lines 34-63; columns 11-12; column 18, lines 11-27	1,8,10,26
A	US 6,161,076 A (Barr, et al) 12 Dec. 2000 (12.12.2000) column 5, lines 19-68; column 7 line 56 - column 9 line 48; column 11, lines 1-50	1-7, 10, 12-22, 26-28, 31, 34-44
A	US 5,400,299 A (Trantham) 20 Aug. 1995 (20.08.1995) column 4, line 60 to column 5, line 6; column 6, line 1 to column 8, line 58; Figs. 1-3	1-46

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

23 November 2004 (23.11.2004)

Date of mailing of the international search report

18 JAN 2005

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